



Paris, 22 December 2020

Executive Director Patrick Ky  
European Aviation Safety Agency  
Konrad-Adenauer-Ufer 3  
D-50668 Köln, Germany

Re: The Boeing Company Model 737-8 and 737-9 (“737 MAX”) Airplanes  
EASA Proposed Airworthiness Directive 20-184: Return to Service

Dear M. Ky:

Association Vol ET302 Solidarité et Justice respectfully submits the attached Comment in response to EASA’s Proposed Airworthiness Directive concerning the return to service of the Boeing 737 MAX. We are joined in our efforts by hundreds of friends and family members of the 157 victims of Ethiopian Airlines Flight 302, who collectively oppose EASA’s proposed ungrounding of the 737 MAX.

In your meeting with the ET302 families on 16 September, you told us that the 737 MAX would not be ungrounded in Europe until the two accidents were fully understood. You committed to us that EASA would not rely on the FAA’s findings and would conduct its own in-depth technical investigations into the modified 737 MAX. You also agreed to send us a copy of the agency’s safety report upon its completion. As of today, however, the airplane remains aerodynamically unstable and out of compliance with modern aircraft certification standards, while EASA has yet to complete its safety report, which we are told will not be ready for publication until after the ungrounding.

The ET302 families are counting on EASA to be transparent. You promised us that EASA would not unground the 737 MAX until both crashes were understood, yet it now appears that the ungrounding is imminent even though EASA has not finished its analysis of the modified airplane. It would be impossible for EASA to conclude that the revised 737 MAX is safe before its own safety assessment is complete, especially since it is no longer possible to trust in the validity of the FAA’s ungrounding decision. It is also unacceptable for EASA to expect the public to take the agency at its word until EASA first addresses several remaining questions about the safety of the modified airplane.

**ASSOCIATION VOL ET302 – SOLIDARITE & JUSTICE**

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In addition to enforcing the recommendations made in the PAD, we strongly urge EASA to address the following actions before ungrounding the 737 MAX, which we discuss further in the attached comment:

1. Explain why the 737 MAX is certifiable and safe to operate with MCAS disengaged and release the data upon which EASA based its conclusion.
2. Require Boeing to increase the airplane's safety margins beyond bare compliance by implementing a third Angle of Attack sensor and redesigning the flight deck and crew alert system to meet modern safety standards.
3. Address the safety risks presented by the fact that MCAS is now programmed to analyze AOA values in such a way that MCAS may not activate when needed.
4. Detail the risks of the RNP AR approach in the 737 MAX and defend the safety implications posed by the unavailability of the approach.
5. Complete the agency's safety report concerning the crash of ET302 and address all unanswered questions before the ungrounding.

Until EASA has taken each of these recommended steps, the flying public cannot be confident in the agency's decision to recertify and unground the 737 MAX.

We are counting on you to honor the memories of our precious loved ones. Please do not let us down.

Very respectfully,

**Virginie FRICAUDET**  
President and sister of Xavier  
Fricaudet

**Matthieu WILLM**  
Vice-President and brother of  
Clémence-Isaure Boutant Willm

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Konrad-Adenauer-Ufer 3  
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**Subject:**

The Boeing Company Model 737-8 and 737-9 (“737 MAX”) Airplanes  
Proposed Airworthiness Directive 20-184: Return to Service

**Comment:**

The families of the Ethiopian Airlines Flight 302 (ET302) victims oppose the European Aviation Safety Agency (EASA)’s proposed recertification and ungrounding of the 737 MAX because the airplane is aerodynamically unstable and does not comply with modern aircraft certification standards. EASA has not revealed the data supporting its determination that the changes mandated by the Proposed Airworthiness Directive would ensure that the 737 MAX is safe to fly, and the PAD leaves unanswered critical questions regarding the airplane’s safety.

This comment is particularly urgent considering the shocking aviation safety report issued on December 18, 2020 by the United States Senate Commerce Committee, which published whistleblower claims that Boeing and the Federal Aviation Administration (FAA) colluded during recertification testing for the 737 MAX<sup>1</sup>. The committee reported that FAA and Boeing officials attempted “to cover up important information that may have contributed to the 737 MAX tragedies.” The report also reveals that Boeing employees coached pilots assessing the safety of the redesigned MCAS system. EASA’s PAD adopts nearly all the recommendations made by the FAA in its own proposed airworthiness directive, presumably under the impression that EASA could trust and rely on the FAA’s findings. But it is now clear that the FAA is compromised because it is beholden to industry from the top down. EASA must therefore ensure that the data upon which it based its PAD has been thoroughly reevaluated and independently verified if the flying public is to feel confident in EASA’s eventual ungrounding decision.

In addition to enforcing the recommendations made in its PAD, we strongly urge EASA to address the following actions before moving forward with the 737 MAX return to service:

- 1. Explain why the 737 MAX is certifiable and safe to operate with MCAS disengaged and release the data upon which EASA based its conclusion.**
- 2. Require Boeing to increase the airplane’s safety margins beyond bare compliance by implementing a third Angle of Attack sensor and redesigning the flight deck and crew alert system to meet modern safety standards.**

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<sup>1</sup> U.S. Senate Committee on Commerce, Science and Transportation. *Committee Investigation Report on Aviation Safety Oversight, December 2020.*

- 3. Address the safety risks presented by the fact that MCAS is now programmed to analyze AOA values in such a way that MCAS may not activate when needed.**
- 4. Detail the risks of the RNP AR approach in the 737 MAX and defend the safety implications posed by the unavailability of the approach.**
- 5. Complete the agency's safety report concerning the crash of ET302 and address all unanswered questions before the ungrounding.**

Until EASA has taken each of these recommended steps, the public cannot be confident in the agency's decision to unground the 737 MAX.

### **Background**

We are a group of spouses, children, parents, grandparents, and siblings whose family members perished in the crash of ET302 on March 10, 2019. Supporting us in this effort are many friends of our lost loved ones. We are issuing this comment to express our disagreement with the PAD published by EASA for the Boeing 737 MAX. The PAD contains several shortcomings and omits critical safety improvements that must be addressed and implemented prior to EASA's ungrounding of the airplane.

The ET302 and Lion Air Flight 610 (JT610) crashes were caused by deadly design defects in the 737 MAX's Maneuvering Characteristics Augmentation System (MCAS). In both crashes the single point failure of a faulty AOA sensor triggered MCAS to command repeated nose down trim, causing the airplanes to enter unrecoverable dives. In developing MCAS to overcome the dangerous pitch instability of the 737 MAX, Boeing took shortcuts in the design process, ignored fundamental design principles, and failed to perform proper system safety assessments and functional hazard analyses. Boeing purposefully concealed the very existence of MCAS from its airline customers and 737 MAX pilots to avoid the costs associated with additional pilot training. Worse still, because of competitive pressures and a corporate culture encouraging profits over safety, Boeing hid MCAS's ability to override and overpower pilot commands and misled regulators about associated risk factors to quickly obtain certification for the airplane and avoid pilot training requirements due to the presence of MCAS.

The pain of our loss is compounded by the fact that the 737 MAX tragedies were entirely preventable. During the airplane's development, Boeing engineers identified the exact defect that would later cause the two crashes but decided that it was not necessary to change the design to eliminate the system's risks. Boeing then resisted grounding the 737 MAX even after the defects caused the JT610 crash that took 189 lives on October 29, 2018. Boeing's denials continued even after the defects in the 737 MAX caused the ET302 crash, costing another 157 precious lives and prompting a worldwide ban of the airplane. As recently as May 2020, top Boeing officials denied making mistakes in the design and manufacture of the 737 MAX. Boeing executive Keith Leverkuhn, former Vice President and General Manager of the MAX program, told government investigators behind closed doors that the development of the 737 MAX was "correct and

appropriate<sup>2</sup>.” Michael Teal, another Boeing executive, agreed with Mr. Leverkuhn, and testified that he signed off on the MCAS without knowing that the system was capable of commanding repeated nose-down trim cycles based on erroneous input from a single AOA sensor<sup>3</sup>.

Boeing repeatedly misled regulators about the safety of the 737 MAX and the airplane never should have been allowed to fly in its original state. The modifications now proposed by EASA, though compliant from a strict regulatory point of view, still are not in line with current industry standards and fail to inspire confidence that the revised airplane will be safe.

### **EASA’s Proposed Airworthiness Directive is inadequate.**

The modifications recommended by EASA’s PAD are intended to suppress the root cause of both accidents by improving redundancy of MCAS through additional AOA sensor input and reducing the system’s authority to one nose-down trim cycle. The PAD also recommends that Boeing implement wiring changes to the horizontal stabilizer<sup>4</sup>, install colored caps on the stall warning system’s circuit breakers, and amend the flight manual to introduce new flight crew procedures and limitations, including a prohibition on the performance of RNP AR approaches in the 737 MAX. Although a well-intended step in the right direction, these changes are insufficient to guarantee the safety of the airplane. In an attempt to reduce the risk of inadvertent MCAS actuation, the proposed changes have increased the likelihood that MCAS will not activate when needed during high angle of attack flight maneuvers. EASA must take the following additional actions to improve safety margins and make the airplane consistent with modern industry standards before allowing the 737 MAX back in the air:

#### **1. EASA must explain why the 737 MAX is certifiable and safe to operate with MCAS disengaged and release the data upon which it based its conclusion.**

EASA has adopted the FAA’s recommendation that the revised 737 MAX must analyze angle of attack values from both AOA sensors instead of one. This is inadequate, because in the event of a disagreement, the flight control computer will shut off MCAS, leaving the airplane without protection if the nose gives into its natural tendency to pitch up.

Boeing introduced MCAS after concluding that the 737 MAX was unsafe due to noncompliant handling and maneuverability characteristics. Boeing later expanded MCAS to engage at lower speeds and at all loads because it determined that the 737 MAX’s flaps-up stall characteristics were uncertifiable. As part of the proposed modifications, Boeing intends to reduce the control authority of MCAS, as well as to limit the number of times it can actuate. It would have been illogical for Boeing to develop and implement MCAS if it had not been absolutely convinced that the airplane was uncertifiable without it. Yet this is wholly inconsistent

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<sup>2</sup> See House Committee on Transportation and Infrastructure staff interview of Keith Leverkuhn, former Vice President and General Manager of the 737 MAX program, Boeing Commercial Airplanes, May 19, 2020.

<sup>3</sup> See House Committee on Transportation and Infrastructure staff interview of Michael Teal, former Vice President, Chief Project Engineer and Deputy Program Manager of the 737 MAX Program, Boeing Commercial Airplanes, May 11, 2020.

<sup>4</sup>The rerouting of horizontal stabilizer trim wires has no relation to the crashes of ET302 or JT610 and should not be construed as a corrective action towards the cause of the two events.

with EASA's current position. By allowing the 737 MAX to operate with a significantly diminished MCAS and permitting Boeing to program MCAS to cut off in the event of an AOA disagree, EASA is suggesting that the airplane is certifiable without MCAS and implying that MCAS has no effect on the safety of the airplane. This begs the questions:

- **If EASA has determined that it is acceptable for MCAS to shut off in the event of an AOA disagreement, and pilots can safely fly the aircraft without MCAS, then why was MCAS needed in the first place?**
- **If Boeing developed MCAS to address specific performance deficiencies in the 737 MAX, and the system will now shut down whenever there is a disagreement between AOA sensors, then how will those deficiencies be addressed?**

As part of its strategy to get the 737 MAX flying again, EASA is downplaying the need for MCAS, implying that the system is not necessary for safe operation of the 737 MAX, and claiming that the 737 MAX has safe stall characteristics even without a functioning MCAS. We must therefore ask:

- **If the flaps up stall characteristics of the 737 MAX are certifiable without MCAS, then did Boeing make a terrible mistake in expanding it to improve those characteristics and to help with stall identification because Boeing determined that the 737 MAX was uncertifiable without MCAS?**
- **Did Boeing cause two plane crashes because it was wrong about the 737 MAX's stall characteristics?**

If EASA has indeed determined that the 737 MAX is airworthy for stall characteristics without MCAS, then it must reveal the data that verifies this finding. EASA cannot unground the airplane while working on behalf of Boeing to hide its protocols, test results and other key data. If EASA relies upon certain data to propose a rule, then EASA is ethically bound to disclose that data to the public, who can then choose to comment with full information. EASA cannot base the 737 MAX's return to service on secret data that it has not disclosed.

## **2. EASA must require Boeing to implement additional modifications to increase the airplane's safety margins beyond bare compliance and ensure that the MAX adheres to modern industry standards.**

Boeing developed the 737 MAX to compete with the A320neo, a new fuel-efficient single aisle airplane produced by Airbus. Under the threat of losing market share to its European rival, Boeing decided to design the 737 MAX as a minimally-changed derivative of the Boeing 737 Next Generation (737NG) rather than design a new airplane. Boeing adopted this strategy to save the company development time and costs, and to expedite certification. The primary difference between the 737NG and the 737 MAX was the incorporation of the 737 MAX's large LEAP-1B engines, which had to be mounted higher and farther forward on the wings to fit the

737's airframe. Early in development, Boeing discovered that the 737 MAX tended to pitch up in certain stages of flight as a result of the size and positioning of the plane's engines. Discovering aerodynamic problems of this nature is not uncommon during airplane development and manufacturers usually address these types of problems by incorporating structural or aerodynamic components that can passively counter the pitch-up force or reduce it. But Boeing made only minor physical changes to the 737 MAX's airframe, deciding instead to solve the airplane's aerodynamic problem primarily with software.

Boeing quietly developed MCAS, a computer control law programmed into the 737 MAX's flight control computers, to address the pitch-up problem. MCAS was programmed to automatically push the airplane's nose down by moving the 737 MAX's horizontal stabilizer if one of the airplane's two AOA sensors indicated that the airplane's upward pitch angle was too high. Boeing designed MCAS so that after it completed a nose-down trim cycle, or the pilots countermanded the MCAS nose-down trim by using the electric trim switches to bring the nose back up, MCAS would reengage after five seconds and command another nose-down trim cycle if the AOA value supplied by a single AOA sensor remained above the MCAS trigger threshold. Boeing determined that without MCAS, the 737 MAX would not comply with regulatory safety requirements concerning aerodynamic stability and would not be certifiable.

Boeing also knew that if it presented MCAS as a new system, it might be subjected to enhanced regulatory scrutiny and the potential for increased pilot training requirements. A key element to Boeing's marketing strategy for the 737 MAX was to sell its airline customers on the idea that 737NG pilots would be able to transition seamlessly to the 737 MAX with little training and without the need for a new type rating. Without this selling point, Boeing knew that its business would suffer. So Boeing cleverly portrayed MCAS to regulators as a mere extension of the Speed Trim System (STS), an existing system in the 737NG. Boeing told regulators that MCAS was transparent to pilots and would only activate far outside normal flight conditions.<sup>5</sup> Boeing's misleading strategy of branding MCAS as an additional function under the STS worked. The FAA granted Boeing an Amended Type Certificate, agreed to remove all references to MCAS from the operational and training materials, and approved a two-hour computer-based pilot training course that did not even mention MCAS rather than mandating more rigorous simulator training.

The 737 MAX was certified under false pretenses, because the system safety information Boeing provided to regulators during the certification process grossly understated MCAS's actual power and operational envelope. Initially, Boeing restricted MCAS to high speed and high AOA operation – flight conditions that pilots would only rarely, if ever, encounter – and limited MCAS's authority to move the horizontal stabilizer to push the airplane's nose down a mere 0.6 degrees per activation. But in 2016, after the safety of MCAS had already been analyzed, Boeing substantially augmented the system's capabilities, expanding MCAS to lower flight speeds and dramatically increasing its authority to a powerful 2.5 degrees per activation. Boeing did not

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<sup>5</sup> MCAS was not developed as an extension of the Speed Trim System. MCAS performs a different function than the Speed Trim System and has different risks and failure modes. Boeing merely branded the MCAS as part of the Speed Trim System to avoid FAA scrutiny.

inform regulators of these changes in order to surreptitiously advance its marketing strategy of minimizing pilot training for competitive advantage. Boeing expanded MCAS after determining in flight testing that the 737 MAX did not have safe flaps up stall characteristics and that without MCAS augmentation, the 737 MAX would be uncertifiable. The expansion of MCAS was necessary to save the 737 MAX at a point when Boeing had already invested a tremendous amount of time and money into the project. A physical fix would cause higher costs to Boeing, unacceptable production delays, enhanced scrutiny of the airplane's design, and additional pilot training requirements.

But MCAS was not a fail-safe design. Because Boeing misled regulators on MCAS's capabilities so significantly, the system was permitted to rely on data from just one of the airplane's two AOA sensors, making the 737 MAX vulnerable to unwanted MCAS activation in the event of erroneous data supplied by a single faulty AOA sensor. Boeing's withholding of critical safety information resulted in the certification of a system susceptible to single point failure. Indeed, in both JT610 and ET302, the airplanes' second AOA sensor produced accurate AOA values, but the MCAS did not have access to this accurate data because only one sensor was being used.

Boeing still has not made necessary changes to ensure that the 737 MAX enjoys comfortable safety margins beyond bare compliance. EASA take the following steps before the plane is ungrounded to ensure that the 737 MAX adheres to modern industry standards:

**A. Immediately conduct a human factor assessment of the 737 MAX crew alert system and release the results to the public.**

EASA's PAD attempts to address a critical hazard that contributed to the crashes of JT610 and ET302: the series of cascading flight deck alerts that confused and overwhelmed the flight crews, delaying their recognition of the failed sensor and its effects – thereby sealing their fates.

Pilots rely upon crew alerting systems, which are compulsory in all modern aircraft. During the 737 MAX certification process, however, Boeing convinced FAA regulators that it should not have to comply with updated regulations concerning flight crew alerts based on the FAA's "changed product rule." This rule permits new versions of older model airplanes to be granted compliance exceptions during certification if the manufacturer can show that it would be "impractical" to comply with new regulations because the anticipated safety benefits do not justify the costs necessary to comply. Based on incomplete and misleading information, the FAA granted Boeing's request for an exception for the 737 MAX, allowing Boeing to circumvent three critical regulations: 14 CFR Part 25.1322(b)(3), which requires advisory alerts for conditions that require flight crew awareness and may require subsequent flight crew response; 14 CFR Part 25.1322(c)(2), which mandates that warning and caution alerts must provide timely attention-getting cues through at least two different senses by a combination of aural, visual, or tactile indications; and 14 CFR Part 25.1322(d), which states that the alert function must be designed to minimize the effects of false and nuisance alerts.



When Boeing develops a new airplane, it is required to conduct safety assessments to ensure that all combinations of failures that could lead to hazardous or catastrophic results have been considered and appropriately mitigated or, ideally, eliminated. During the development of the 737 MAX, Boeing tested the effects of uncommanded MCAS activation, but did not evaluate the risks presented by cascading flight deck alerts caused by an erroneous AOA reading, including the visual and audio effects generated by the IAS DISAGREE, ALT DISAGREE and Stall Warning alerts, among others. This missed evaluation was especially critical, because Boeing's test pilots concluded that a runaway trim at the MCAS high speed rate could present a catastrophic risk to the airplane (i.e., a plane crash) if pilots delayed their response time beyond 10 seconds. Boeing also failed to examine the hazard scenario of repeated MCAS activations based on erroneous AOA sensor values, despite recognizing this vulnerability of the system during development. Boeing's simulator tests, intended to verify the safety of the MCAS, were wholly subjective and not based upon scientific methodology because they failed to consider real pilot response times, actual cockpit system indications, or anticipated emergent circumstances. As a result, the findings were meaningless because they did not simulate the real-life hazards that pilots would face in addressing an MCAS emergency triggered by an erroneous AOA.

Despite all this, the 737 MAX's flight deck still does not include a simple indicator that the MCAS has been activated, nor does it give the flight crew the ability to disable the MCAS after receiving such a warning. EASA recommends in its PAD that pilots be given the ability to stop the stick shaker from vibrating once it has been erroneously activated and suggests that Boeing install colored caps on the stick shaker circuit breakers so that pilots can quickly deactivate them. This suggestion is woefully inadequate. Boeing and EASA seem to recognize this, because Boeing reportedly committed to conducting a human factor assessment of its crew alert systems in the twelve months following the ungrounding, with the aim of potentially upgrading the flight deck to a more modern design approach. Boeing's proposal to evaluate the flight deck for safety risks only after the 737 MAX is ungrounded is unacceptable for obvious reasons, and its implication that there is only a potential for safety improvements is dishonest. In the aftermath of this week's damning Senate report, it is no longer negotiable that the 737 MAX's flight deck must be completely overhauled and upgraded to meet modern standards before the airplane can be ungrounded. The only remaining questions pertain to the scope of the overhaul, and the answers should come only from independent experts instead of from compromised insiders at Boeing.

Boeing shamefully can no longer be trusted to conduct an independent assessment in which it does not try to exert influence over regulators. EASA therefore must remove Boeing from the process altogether and hire independent experts to conduct a comprehensive assessment without industry involvement. The assessment must be conducted immediately and EASA must publish the results if it ever hopes to attain public confidence in its ungrounding decision. Once EASA's experts determine the extent of necessary upgrades, Boeing must take immediate action to make those changes. Boeing also must be ordered to assume the cost of all flight deck upgrades and pay for its customers to retrofit their 737 MAX fleets. EASA cannot permit Boeing to prioritize profit once again over safety by allowing it to offer critical safety improvements as optional for-purchase upgrades.

Well before the ungrounding, EASA must independently confirm that an MCAS failure is easily manageable for commercial line pilots faced with an emergency, rather than merely suitable for Boeing test pilots who know what is coming. This objective is now mission-critical since the Senate Commerce Committee's investigation revealed that during the FAA's 737 MAX recertification testing, at least one Boeing employee inappropriately influenced FAA human factor testing of pilot reaction times involving an MCAS failure. The investigation also found that FAA test pilots were complicit in skewing human factor simulator testing to support Boeing's claim that trained pilots should be able to respond to an MCAS failure in 4 seconds, when in fact, at least one pilot who had not been secretly advised by Boeing took 16 seconds to respond to the same failure. In response to this shocking level of corruption and undue influence, EASA must completely disregard its preconceived notions concerning pilot response times, conduct its own human factor evaluation from scratch, and compel Boeing to overhaul the 737 MAX flight deck accordingly.

Human factor concerns are especially prescient in the age of COVID-19, as air travel has declined significantly, and many pilots have been furloughed or are flying a significantly reduced schedule. New 737 MAX flight crews may not be as proficient in the cockpit or quick to respond to irregularities as they would have been in normal circumstances. Indeed, according to recent media reports<sup>6</sup>, Boeing has embarked on an unusual hiring spree of up to 160 pilots whom it will embed among its 737 MAX customers as part of a worldwide campaign to protect the 737 MAX relaunch from "operational glitches." These "Global Engagement Pilots" will act as instructors or cockpit observers on 35-day assignments in the redesigned 737 MAX. The fact that Boeing does not feel confident in the average pilot's ability to safely pilot the airplane yet continues to force the airplane back into service says it all: until the 737 MAX's existing flight deck hazards have been carefully evaluated and the flight deck has been modernized accordingly, the airplane should not be permitted to fly.

#### **B. Order Boeing to install a third Angle of Attack sensor on every 737 MAX airplane.**

From the beginning of the 737 MAX redesign efforts, Boeing needed to figure out a way to compare AOA sensor inputs, determine which was correct, and either trigger MCAS to engage or disable the system. Boeing also had to make sure that MCAS would be timely annunciated to pilots, would operate correctly when needed, and would not mistakenly activate based on erroneous AOA sensor input. EASA's PAD adopts the FAA's recommendation that MCAS must now compare data from two AOA sensors rather than one. This is not an adequate solution. The plane must, at minimum, be equipped with a third physical AOA sensor or an independent synthetic AOA sensor and associated software to allow the 737 MAX's systems to determine with certainty that a sensor failure has occurred or that AOA data is erroneous. Using two sensors means that the system cannot guarantee which one is correct, increasing the potential that

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<sup>6</sup> Johnson, E. (2020 Dec 18) Exclusive: Boeing hires pilots for airlines to help relaunch 737 MAX – sources. *Reuters*. Retrieved from <https://www.reuters.com/article/us-boeing-737max-pilots-exclusive/exclusive-boeing-hires-pilots-for-airlines-to-help-relaunch-737-max-sources-idUSKBN28Q31R>.

an erroneous AOA will make MCAS unavailable and expose the 737 MAX to the aerodynamic deficiencies that required MCAS in the first place.

If the MCAS is to be retained as the means of ensuring aerodynamic stability, the airplane must be redesigned with a third physical AOA sensor, as exists for most other modern aircraft. By now it is well known that MCAS is a safety critical system and always should have been designed as a safety critical system. Regulations dictate that such systems must be designed with redundancy to protect against vulnerability to common mode or single point failures. A state-of-the-art triple redundancy sensor system will increase the integrity of MCAS because it will not be vulnerable to a single point failure. The challenge presented by reliance on two AOA sensors is the determination of which value is valid and which is not, especially if one sensor is erroneously reading high or low in a valid range. The most logical solution is to add a third AOA sensor to the 737 MAX, to allow true voting between inputs. Though the installation of a physical sensor is preferable to a synthetic sensor, the use of a synthetic AOA sensor is acceptable so long as the synthetic AOA value is truly independent from the value taken from the two physical sensors.

**3. MCAS is now programmed to analyze AOA values in such a way that MCAS may not activate when needed. EASA must explain why this risk was deemed acceptable.**

The new MCAS control law on the redesigned 737 MAX evaluates input from both angle of attack sensors using a method called Middle Value Select (MVS). MVS analyzes three AOA input values to determine when MCAS should activate. The first two values are taken from the airplane's two physical AOA sensors, while the third value is the last known average between the two physical sensor readings before one experiences a deviation beyond 5.5 degrees. When such a deviation happens, the sensor value that has shifted away from the previous "good" averages is deemed to be invalid. The deviation is then announced to pilots through an AOA disagree alert and the MCAS is disabled, preventing the system from erroneously pushing the airplane's nose down as it did during the accident flights.

This approach increases the chances that the new MCAS system may not engage in flight conditions where it is intended to work, without any warning to the pilots. In a situation where the deviation of sensor readings stayed within the valid range of 5.5 degrees, MCAS would accept a middle value that is erroneous and outside the MCAS trigger range, when the actual AOA of the airplane is within the MCAS trigger range. While MCAS is still active, it would only engage once the airplane reaches an angle of attack that is much higher than its programmed threshold, possibly even beyond when a stall condition would be encountered. As a result, pilots potentially could fly the aircraft into a stall during a climb or an avoidance maneuver, expecting MCAS to protect them. By the time the crew realizes that MCAS did not activate, it would be nearly impossible for the pilots to recover from the stall. This presents an obvious safety risk.

Although this hazard did not contribute to the ET302 crash, its existence in the redesigned 737 MAX highlights the shortcomings of the original design process and Boeing's continued preference for shortcuts rather than the implementation of a comprehensive system

design commensurate with the safety critical requirements. It also highlights the troubling implication from both the FAA and EASA that the airplane's flaps up stall characteristics are acceptable without MCAS and may have been acceptable prior to the two accidents. Finally, it supports the need for a three-sensor system, because the two-sensor design remains vulnerable to a single AOA sensor failure and greatly increases the chance that MCAS will not be available when needed. These dangerous discrepancies must be addressed by EASA. The agency must clearly state its position on whether the 737 MAX is certifiable without MCAS, and it must publicly release the data upon which it based its decision before the 737 MAX can be allowed to back in the air.

#### **4. EASA must detail the risks of the RNP AR approach in the 737 MAX and defend the safety implications posed by the unavailability of the approach.**

EASA's PAD imposes an operational restriction prohibiting 737 MAX pilots from performing Required Navigation Performance – Authorization Required (RNP AR) approach procedures because of known safety risks linked to erroneous AOA events. The PAD does not elaborate on these risks, however, nor does it explain why the 737 MAX is not qualified to perform the approach.

The RNP AR approach is a precision landing approach that is used to increase safety and access in circumstances where a conventional approach cannot be achieved, like in congested airspace, poor weather conditions, or in mountainous terrain. The RNP AR approach is different from other types of approaches because it requires the airplane's autopilot function to be left engaged until the runway is in sight. RNP AR also has unique vertical accuracy requirements and requires extra alerting capabilities and increased monitoring from pilots due to reduced obstacle clearance in the flight path. For an airplane to be allowed to perform this type of approach, manufacturers must prove that the airplane's systems and equipment are safe and adequate. Among other qualifiers, no single point of failure can cause a loss of the navigational guidance required to achieve the approach.

Experts have determined that the unavailability of the RNP AR approach could present a safety issue in certain flight conditions due to the increased burden on air traffic controllers. If a 737 MAX were to fly under conditions in which the RNP AR approach was considered the safest option but the pilots were not allowed to utilize it, air traffic controllers would have to vector the airplane around the airport so that the pilots could perform a permissible approach on a more accessible runway. This would unnecessarily divert the controllers' attention, increase workload, and disrupt the flow of existing flight traffic, which would generate a safety risk not only for the 737 MAX but for every airplane in the controllers' airspace. In the unique situation where the RNP AR is the only available approach, the MAX will be prohibited from landing altogether. This implies that the currently-unstated risk of allowing the RNP AR approach is so great that EASA would rather send the 737 MAX to another airport.

Clearly, EASA has concluded that the safety risks of allowing the RNP AR approach in the 737 MAX outweigh the safety implications of prohibiting the approach. EASA must defend

this conclusion and release the data upon which its decision was based before the public can be confident that the 737 MAX is safe to fly.

**5. EASA must complete the agency's safety report concerning the crash of ET302 and address all unanswered questions before the ungrounding.**

At the September 16, 2020 meeting between EASA officials and ET302 families, Executive Director Patrick Ky promised the families that the 737 MAX would not be ungrounded in Europe until the two accidents were fully understood. He stated that EASA would not rely on the FAA's findings and would conduct its own in-depth technical investigations into the modified 737 MAX, including the airplane's handling qualities and stall characteristics both with and without MCAS. He agreed to send the families a copy of the agency's safety report upon its completion. As of today, however, EASA has yet to complete the report. According to an EASA representative, the report is still being prepared and will not be ready for publication until mid-January 2021.

The ET302 families are counting on EASA to be transparent. EASA committed to the families that it would not unground the 737 MAX until both crashes were understood, yet it now appears that the ungrounding is imminent even though EASA has not finished its analysis. It is impossible for EASA to conclude that the revised 737 MAX is safe before its own safety assessment is complete, especially since it is no longer possible to rely on the validity of the FAA's ungrounding decision. It is also unacceptable for the agency to unground the 737 MAX before addressing unanswered questions about the safety of the modified airplane. In particular, EASA must confirm whether the airplane's autothrottle function will automatically disengage in response to an AOA disagree and must defend the revelation that the efforts of two pilots still may be necessary to fight against the automatic trim forces in the event of a runaway stabilizer.

The ET302 interim report states that the airplane's autothrottle function – the system that allows pilots to control the power setting of the engines – did not automatically disengage despite the inconsistent angle of attack value. This contributed to the crash, as the autothrottle maintained almost maximum thrust in the minutes after takeoff because it wrongly “thought,” due to the defective AOA sensor, that the airplane had not yet reached the appropriate altitude to reduce thrust. To prevent a similar scenario, the airplane's autothrottle should automatically disengage in the event of an AOA disagree, but EASA has not confirmed whether the modified 737 MAX software is programmed to do so. If it is not, EASA must demand that Boeing make the programming change and refuse to unground the airplane until the modification is complete.

EASA also must clarify and refine the emergency procedure for a runaway stabilizer in the 737 MAX. During the September meeting with the ET302 families, Executive Director Ky pledged that the automatic trim on the revised 737 MAX would disengage before the automatic forces became too high for one pilot to manually trim the aircraft. Yet the EASA PAD states that two pilots may be necessary to effectuate manual trim in the event of a runaway trim scenario. This is alarming, because the ET302 interim report concluded that manual trim was impossible in the accident flight, even with the efforts of two pilots, and neither EASA nor Boeing has indicated that this dangerous condition has been corrected. If two pilots may be necessary to manually trim the aircraft, then the 737 MAX is vulnerable to an extremely unsafe scenario

where both pilots are struggling to pull back on the trim wheel and neither is available to control the airplane. EASA must explain how it deemed this scenario to be safe. If EASA it cannot justify its determination with data, it must not unground the airplane.

### **Conclusion**

On behalf of our lost family members, we respectfully ask EASA to take the actions set forth in full above before moving forward with the proposed airworthiness directive and ungrounding of the 737 MAX.

VICTIM	SIGNATORY
Samya Rose Stumo	Michael Stumo, father
Maria Pilar Buzzetti	Francesca Campanello, friend
Sam Pegram	Tom Weston, friend
Sam Pegram	Natalie Eacersall, family friend
Clemence Willm-Boutant Sam Pegram	Maher Youssef, friend/colleague
Oliver Vick	Rifet Arapovic, friend
Graciela De Luis Ponce	Javier de Luis, sister
Camille Geoffroy	Laura Champion Geoffroy, aunt
Stéphanie Lacroix	Darla, family friend
Melvin Riffel Bennett Riffel	Alexandria F Kealey, mother's friend
Oliver Vick	Ilaria Gandossi, mother of his daughters
Camille Geoffroy	Marc de Fleurieu, uncle

Marie Christin Philipp	Roland Panitz, family friend
Marie Christin Philipp	Kathrin Ewers, family friend
Samya Rose Stumo	Paige Kimble, a friend in solidarity with the Stumo/Milleron family
Samya Rose Stumo	Laura Zabriskie, friend
Josefin Augusta Ekermann	Maria Ekermann, mother
Samuel Pegram	Seamus Harland, friend
Graciela De Luis Ponce	Rebecca Padera, friend
Stéphanie Lacroix	Julie Balasalle, friend and coworker
Sam Pegram	James Killen, friend
Joanna Toole	Sarah Burton, family friend
Danielle Moore	Owen Campbell, friend
Stéphanie Lacroix	Dominique Lacroix, sister
Camille Geoffroy	Thérèse Rouget, great aunt
Joanna Toole	Bridget Harris, aunt of her best friend, Katy Harris
Marie Christin Philipp	Lena Philipp, sister
Joanna Toole	Dennis Spruce, uncle
Camille Geoffroy	Abel Orain, cousin
Eric Prieur	Prieur Claire, my brother

Stéphanie Lacroix	Kassandra-Lynn Fournier, friend
Samya Rose Stumo	Steven Souaid, cousin
Joanna Toole	Joan Spruce, aunt
Xavier Fricaudet	Nils Brock, good friend
Oliver Vick	Douglas Niall, friend
Samya Rose Stumo	Lloyd Baroody, family friend
Samya Rose Stumo	Anne Marie Papandrea, family friend
Angela Rehorn	John Vincent, uncle
Stéphanie Lacroix	Mike Couture, uncle
Jonathan Seex	Joanna Seex, brother
Max Thabiso Edkins	Jill Edkins Bailey, aunt
Jonathan Seex	Joanna Seex, brother
Jonathan Seex	Joanna Seex, brother
Angela Rehorn	Shantel Rehorn, sister
Camille Geoffroy	Jérôme Bichot, family friend
Max Thabiso Edkins	Jill Edkins Bailey, aunt
Xavier Fricaudet	Bernadette Henry, family friend
Sam Pegram	Brian Eacersall, family friend through daughter
Camille Geoffroy	Cédric Midoux, friend



Xavier Fricaudet	Anne Déchelette, a friend of his parents
Max Thabiso Edkins	Annie Fitzsimmons, friend
Paolo Dieci	Estella Dieci, niece
Oliver Vick	Chris Arnold, friend
Jessica Hyba	Chris Arnold, friend
Joanna Toole	Natalie Fullick, friend
Max Thabiso Edkins	Teni Ntoi, friend
Max Thabiso Edkins	Khabele Mofelehetsi, family friend
Camille Geoffroy	Veronique Geoffroy, aunt
Angela Rehorn	Ian Middlestadt, family friend
Max Thabiso Edkins	Andrea Andersen, cousin
Xavier Fricaudet	Marine Capron, sister-in-law
Stéphanie Lacroix	Katherine Cloutier, friend
Angela Rehorn	Melissa Glenn, family friend
Xavier Fricaudet	Matthieu Fricaudet, brother
Camille Geoffroy	Henri Virol, friend
Graciela De Luis Ponce	Jean Kwo, sister-in-law
Clemence Willm-Boutant	Ian Henstock, former colleague
Samya Rose Stumo	Brian Hubbard, family friend

Danielle Moore	Elizabeth Nagel, friend
Oliver Vick	Lucinda Pullinger, friend
Stéphanie Lacroix	Philippe Leroux, family friend
Anne-Katrin Feigl	Juan Carlos Llorens, friend
Micah Messent	Marylise Lefevre, family friend
Xavier Fricaudet	Bernard Vinot, family friend
Marie Christin Philipp	Sarah Ogiermann, friend
Maria Pilar Buzzetti	Aila Mohrhoff, close family friend
Angela Rehorn	Bud Davies, family friend
Stéphanie Lacroix	Sylvie Lamarche Lacroix, mother
Samya Rose Stumo	Jill Frankel, family friend
Sam Pegram	Claire Gillespie, friend
Graciella de Luis Ponce	Sandra Vrejan, friend
Samya Rose Stumo	Jenea Warren, friend
Joanna Toole	Nicky McNaughton, best friend
Oliver Vick	Jonathan Haines, cousin
Marie Christin Philipp	Derek Hagen, friend
Samya Rose Stumo	Carolyn Souaid, cousin
Matthew Vecere	Nicole Ireland, friend

Stéphanie Lacroix	Julie Lacourse, family friend
Angela Rehorn	Victoria May, friend
Samya Rose Stumo	Lee Cory, friend
Abiodun Bashua	Mariam Bashua, I am his daughter
Abiodun Bashua	Ayodeji Bashua, I am his grandchild
Danielle Moore	Asma Azhar, friends
Samya Rose Stumo	Jilian O'Neill, friend
Camille Geoffroy	Amelie Jourdier, aunt
Samya Rose Stumo	Lloyd Barody, family friend
Max Thabiso Edkins	Janto Hess, cousin
Max Thabiso Edkins	Marianne Gysae-Edkins, mother
Samya Rose Stumo	Brian Hubbard, family friend
Melvin Riffel Bennett Riffel	Elena Riffel, aunt
Sam Pegram	Tom Jones, friend
Oliver Vick	Kirsty Norton, close friend
Joanna Toole	Paul Heydon, family friend
Xavier Fricaudet	Dominique Salame, friend
Angela Rehorn	Gabrielle Smith, friends' daughter
Oliver Vick Jessica Hyba	Jasper Wilms, friends

Stéphanie Lacroix Angela Rehorn Danielle Moore Micah John Messent	Victoria Woodhouse, friend
Melvin Riffel Bennett Riffel	Brittney Riffel, wife, sister-in-law
Suzanne Barranger Jean-Michel Barranger	Sebastien Barranger, son
Yaser Eissa	Samira Eissa, daughter
Stéphanie Lacroix	Daniel Sempels, friend
Oliver Vick	Nicola Baldwin, friend
Marie Christin Philipp	Julia Borkenhagen, friend
Danielle Moore	Lora Meseman, daughter-in-law
Matthew Vecere	Colleen Menz, aunt
Danielle Moore	Lindsay Butt, family friend
Matthew Vecere	Colleen Menz, aunt
Samya Rose Stumo	Zoe Laiz, friend
Samya Rose Stumo	Kristina Louise Hetherington, friend
Micah Messent	Nancy MacPherson, brother-in-law
Samya Rose Stumo	Amy, family friend
Stéphanie Lacroix	Sidra Hashmi, friend
Danielle Moore	Tim Cruickshank, housemate and friend
Micah Messent	K. Jade Ballard, eldest sister

Stéphanie Lacroix	Suzanne Labelle, aunt
Xavier Fricaudet	Matthieu Fricaudet, brother
Stéphanie Lamarche	Lucille Martin, family friend
Clemence Willm-Boutant Sam Pegram	Claire Fabing, colleague
Camille Geoffroy	Catherine Berthet, I am her mother
Samya Rose Stumo	Christina Donnelly, family friend
Camille Geoffroy	Rupert Ball Greene, family friend
Max Thabiso Edkins	Dennis Bailey, uncle
Stéphanie Lacroix	Nicholas Lapointe, friend
Michael Ryan	James Spinelli, close friend
Michael Ryan	Giulia Serrelli, friend
Stéphanie Lacroix	Mike Gonzalez, cousin
Camille Geoffroy	Guenièvre Darbord, friend
George Mukua Kageche	Ruth Kageche, sister
Samya Rose Stumo	Bob Holmlund, great uncle
Joanna Toole	Paul Kiernan, partner
Danielle Moore	Lita Venezuela, family friend
Melvin Riffel	Matthew Medved, family friend
Danielle Courtney Moore	Cynthia Abenir, niece

Michael Ryan	Tiarnan Ryan, brother
Stéphanie Lacroix	Anna Winner, family friend
Alexandra Wachtmeister	Wilhelm Wachtmeister, father
Oliver Vick Christine Alalo	Kirsten Young, friend
Danielle Moore	Richard Hedges, uncle
Alexandra Wachtmeister	Wilhelm Wachtmeister, father
Angela Rehorn	Lorna Nickerson, friend
Alexandra Wachtmeister	Wilhelm Wachtmeister, father
Graciela De Luis Ponce	Christian Klacko, family friend
Angela Rehorn	Marie Scharapenko, friend
Micah John Messent	Glenda T. Wray, friend
Samya Rose Stumo	Leila Baroody, family friend
Samya Rose Stumo	Lois Fuller, family friend
Clemence Willm-Boutant	Violaine Willm, sister
Micheál Ryan	Christine Ryan, mother
Matthew Vecere	Sander Banta, friend
Stéphanie Lacroix	Francine Quirion, family friend
Samya Rose Stumo	Nina Anderson, friend
Melvin Riffel Bennett Riffel	Carol Novelli, family friend

Stéphanie Lacroix	Al Lacroix, father
Melvin Riffel Bennett Riffel	Anne Robertson, cousin
Stéphanie Lacroix	Francine Quirion, family friend
Micah Messent	Heather Wilson, nephew
Bernad Mutua	Benson Mutua, brother
Oliver Vick	Sally Shortland Gambier, friend
Samya Rose Stumo	Lori Tobasco, friend
Xavier Fricaudet	Yvette Le Gall, in-law
Samya Rose Stumo	Robin Holmlund, family - cousin
Danielle Moore	Kaitlyn Hanson, friend
Anne-Katrin Feigl	Catherine Hubert, friend
Micah Messant Danielle Moore	Jordan Hawkswell, friend
Anne-Katrin Feigl	Hans-Joachim Feigl, father
Josefin Augusta Ekermann	V Li, friend
Stéphanie Lacroix	Susan Lamarche, aunt
Stéphanie Lacroix	Michael Moscarello, cousin
Josefin Augusta Ekermann	Norah, family
Derick Kivia Lwugi	Gladys Kivia, wife
Samya Rose Stumo	Charles-Alexandre Gagnon, cousin

Derick Kivia Lwugi	Angel Kivia, father
Graciela De Luis Ponce	Isabel de Luis, sister
Danielle Moore	David Lawless, partner
Danielle Moore	Honor Hedges Royer, aunt
Derick Kivia Lwugi	Prince Kivia, father
Oliver Vick	Simon Tilbury, friend
Micah Messent	Frank Messent, brother
Oliver Vick	Katalin Mester, friend
Micah Messent	Nelsen Spickard, cousin
Danielle Moore Micah John Messent Stéphanie Lacroix Micah Messent	Jessica Steele, friend, co-worker, mentor
Sebastiano Tusa	Taryn Bellavance, family friend
Oliver Vick	Alberta Pongiglione, family friend
Micheal Ryan	Nicky Gray, family friend
Micheal Ryan	Cristin, sister
Abiodun Bashua	Michael Paul O'Brien, brother-in-law
Melvin Riffel	Oludamilola Bashua, son
Virginia Chimenti	Nicholas Reiser, family friend
Danielle Moore	Cristina Vacca, friend's sister
	Chúk Odenigbo, friend



Graciela De Luis Ponce	Melinda J Morin, family friend
Danielle Moore	Jan Hedges, aunt
Graciela De Luis Ponce	Claire Farrimond, friend
Xavier Fricaudet	Jean-Luc Moreau, friend
Graciela De Luis Ponce	Rosita Castro Dominguez, friend
Graciela De Luis Ponce	Ana Maria Guerra, family friend
Oliver Vick Jessica Hyba	Tim Bond, friends
Graciela De Luis Ponce	Alejandra Safa Barraza, close friend
Melvin Riffel	Melissa Duralia, friend
Samya Rose Stumo	Laudison Lopes, cousin
Immaculate Odera	Millicent Okello, friends
Wolfgang Eigner	Carmen Sigl, friend
Clemence Willm-Boutant	Christine Falcand, friend
Éric Prieur	Sandra Prieur, sister
Camille Geoffroy	Aude Breton, friend
Danielle Moore	Courtney Schreiter, friend
Danielle Moore	Troy Sabaot, I am her godfather
Graciela De Luis Ponce	Regina Ponce Laviada, first cousin
Samya Rose Stumo	Raffik Lopes, cousin

Matthew Vecere	John DiGenni, best friend
Micah John Messent	Suzanne Camp, I am his mother
Micah Messent	Andrea Anderson, grandmother of his brother's partner
Clemence Willm-Boutant Sam Pegram	Cecilia Roselli, friend and colleague
Samya Rose Stumo	Cássio Lopes, cousin
Max Thabiso Edkins	Dan Bailey, cousin
Samya Rose Stumo	Judith Saathoff, cousin
Wolfgang Eigner Christoph Sautner Armin Schietz	Kerstin, best friend from Carinthia, studied and worked together
Angela Rehorn	Julie Kramer, family friend
Melvin Riffel Bennett Riffel	Susan Janes, family friend and mother-in-law to one of their cousins
Matthew Vecere	Joyce Courter, friend
Joanna Toole	Edward Shutt, family friend
Samya Rose Stumo	Philip Palmquist, cousin
Melvin Riffel Bennett Riffel	Mary Ann, aunt
Camille Geoffroy	Philippe Cavaroz, friend
Samya Rose Stumo	Noor Jdid, friend
Melvin Riffel Bennett Riffel	Cheryl Hess, cousin
Matthew Vecere	Jason McClain, cousin

Samya Rose Stumo	Judith Metro, family friend
Joanna Toole	Michael Rodgers, cousin
Graciela De Luis Ponce	Maya Chidiac, friend
Hussein Swaleh M'Tetu	Abuda Abdulkarim, spouse
Clemence Willm-Boutant	Isabelle Charre, friend
Anne Mogoi Birundu	Dennis Birundu, brother
Graciela De Luis Ponce	Philip Smith, partner
Dawn Christine Tanner	Brian Kobiero, husband
Max Thabiso Edkins	Karin von Kleist-Dobos, cousin
Matthew Vecere	Patricia Vecere McClain, aunt
Alexandra Wachtmeister	Fredrik Wachtmeister, brother
Sam Pegram	Valerie Pegram, grandmother
Matthew Vecere	Linda Ha, partner
Jonathan Seex	Noah Seex Svalin, uncle
Peter Demarsh	Barbara deMarsh, sister
Samya Rose Stumo	Renée Betar, family friend
Samya Rose Stumo	Sandra Sermini-Curtiss, family friend
Clemence Willm-Boutant	Vincent Willm, brother
Melvin Riffel Bennett Riffel	Susan, I am their mother

Clemence Willm-Boutant	Élisabeth Willm, mother
Samya Rose Stumo	Cheryl Engel, close family friend
Camille Geoffroy	Luigi Floria, friend
Jessica Hyba Oliver Vick	Shannon McKenzie, family friend
Matthew Vecere	Warren McClain, uncle
Micah Messent	Paul Messent, uncle
Samya Rose Stumo	Kim Juarez, friend
Sintayehu Shafi Baleker	Konjit Baleker, sister
Harina Hafitz	Arnaud Sournia, family friend
Sintayehu Shafi Baleker	Liul Baleker, brother
Sebastiano Tusa	Lidia Tusa, sister
Clemence Willm-Boutant	Stéphane Porte, friend
Sebastiano Tusa	Delia Tusa, cousin
Sebastiano Tusa	Enza Cilia, family friend
Joanna Toole	Daniel Messom, friend
Oliver Vick	Lynsey Tilbury, friend
Sintayehu Shafi Baleker	Wasihun Baleker, brother
Sintayehu Shafi Baleker	Mulugeta Getnet, friend
Samya Rose Stumo	Penelope Owen, family friend

Sintayehu Shafi Baleker	Tsehay Demissie, friend
Isabella Beryl Achieng Jaboma	Jaboma Allan Jaboma, brother
Oliver Vick	James Vick, father
Graciela De Luis Ponce	Mariana Cristellys, friend and colleague
Sam Pegram	Mark Pegram, father
Micah Messent	Diane Gershman, aunt
Samya Rose Stumo	Michaela Parks, cousin
Samya Rose Stumo	Osamah Khalil, family friend
Michael Ryan	Clodagh Cone, friend
Matthew Vecere	Kellyann Silk, cousin
Melvin Riffel Bennett Riffel	Susan Riffel, I am their mother
Samya Rose Stumo	Mary (Sherry) Boulton, aunt to her partner
Sebastiano Tusa	Angela Pinto, friend
Graciela De Luis Ponce	Stefanie Santa, close friend
Graciela De Luis Ponce	Renata Millet, niece
Melvin Riffel Bennett Riffel	Ericka Allio, family friend
Danielle Moore	Mark Uzer, cousin
Melvin Riffel Bennett Riffel	Martin Ike Riffel, I am their father
Stéphanie Lacroix	Jennifer Ringuette, friend

Virginia Chimenti	Claudia Chimenti, sister
Samya Rose Stumo	Elizabeth Casian, family friend
Micah John Messent	John Joseph Messent, father
Sebastiano Tusa	Marina Ambrogio, niece
Micah John Messent	Matt Messent, oldest brother
Matthew Vecere	Patricia Vecere McClain, aunt
Samya Rose Stumo	John Benedict, friend
Samya Rose Stumo	Rebecca Benedict, family friend
Samya Rose Stumo	Thomas J. Connell, family friend
Samya Rose Stumo	Emilly Crawford, recently reconnected childhood friend
Matthew Vecere	Jenna DiGenni, family friend
Samya Rose Stumo	Grantt Lopes, cousin
Micah John Messent	Joy Camp, aunt
Micah John Messent	David Camp, uncle
Sintayehu Shafi Baleker	Asnake Girma, best friend
Samya Rose Stumo	Helen Hellmers, friend
Samya Rose Stumo	Nicholas Tripcevich, family friend
Stéphanie Lacroix	Jason Lamarche, cousin
Samya Rose Stumo	Karen Lundeen, family friend

Melvin Riffel Bennet Riffel	Lorraine Micke-Hayden, cousin
George Mukua Kageche	Ruth Kageche, sister
Immaculate Odera	James Nyanapah, first cousin
Michael Ryan Ekta Adhikari Zhen Zhen Zhou	Noel Griffin, friend to 7 WFP victims
Oliver Vick Jessica Hyba	Tim Bond, friends
Joseph Waithaka	Jane Waithaka, I am his wife
Melvin Riffel Bennett Riffel	Diana Officer, friend
Wolfgang Eigner	Bettina Eigner, son
Samya Rose Stumo	Mette Linnet, family friend
Sam Pegram Clemence Willm-Boutant	Tamara Kajtazović, friend
Josefin Augusta Ekermann	Julio La Torre, I am her father
Clemence Willm-Boutant Sam Pegram	Dersim Heimervall, colleague and friend
Joanna Toole	John Rodgers, cousin
Max Thabiso Edkins	Teboho Edkins, brother
Maria Pilar Buzzetti	Flaminia Buzzetti, sister
Michael Ryan	Trevor Roper, friend
Sebastiano Tusa	Marco Di Salvo, cousin
Sam Pegram	Scott Hetherington, friend
Marie Christin Philipp	Sophia Baumann, cousin

Ann Mogoi Birundu	Joseph Mbera, cousin
Max Thabiso Edkins	Mark Bailey, cousin
Marcelino Rassul Tayob	Paloma De Andrade, I am his niece
Graciela De Luis Ponce	Rosita Castro Dominguez, friend
Sintayehu Shafi Baleker	Addis Tabi, relative
Samya Rose Stumo	Linda Miller, family friend
Samya Rose Stumo	Erin Cebula, family friend
Xavier Fricaudet	Fricaudet Virginie, sister
Xavier Fricaudet	Arnaud Fricaudet, cousin
Camille Geoffroy	Laura Couillet, friend
Camille Geoffroy	Marc de Fleurieu, uncle
Clemence Willm-Boutant	Magalie Macchi, friend
Camille Geoffroy	Gautier Virol, friend
Camille Geoffroy	Emmanuel de Courcel, uncle
Clemence Willm-Boutant Sam Pegram	Adrián Calvo-Valderrama, friends
Samya Rose Stumo	Cheryl Williams, family friend
Camille Geoffroy	Victor Roseau, friend
Xavier Fricaudet	Marjolaine Puig Salazar, friend
Danielle Moore	Kathryn Brimson, cousin



Xavier Fricaudet	Vincent Edith, family friend
Sebastiano Tusa	Gaspare Sciacca, family friend
Xavier Fricaudet	Magali Fricaudet, family
Xavier Fricaudet	Jean Aublanc, family friend
Sintayehu Shafi Baleker	Andualem Mekonnen, colleague
Xavier Fricaudet	Fricaudet Roseline, mother
Xavier Fricaudet	Amanda flety, family friend
Eléonore Tellier	Guy Tellier, friend
Xavier Fricaudet	Marie Ange Denoyel, family friend
Xavier Fricaudet	René Hautier, family friend
Xavier Fricaudet	Stéphanie Pons, family friend
Xavier Fricaudet	Flavie Le Bris, friend
Clemence Willm-Boutant	Eddy Willm, cousin
Xavier Fricaudet	François Bret, uncle
Camille Geoffroy	Lairt Manon, mother's friend
Samya Rose Stuyo	Sasha Yeutseyeva, friend
Sintayehu Shafi Baleker	Teshale Mamo, friend
Samya Rose Stumo	Sarah Miller, friend
Xavier Fricaudet	Liodenot Michel, family friend

Danielle Moore	Chris Moore, father
Melvin Riffel	Deborah Najera, family friend
Bennett Riffel	Deborah Najera, family friend
Xavier Fricaudet	Julien Lamotte, family friend
Samya Rose Stumo	Diana Sotomayor, friend
Camille Geoffroy	Caroline Sambuy, aunt
Graciela De Luis Ponce	Ricardo Millet, cousin
Xavier Fricaudet	Gustave Massiah, friend
Camille Geoffroy	Patrick De Courcel, uncle
Camille Geoffroy	Odile Celier-Chodron De Courcel, aunt
Samya Rose Stumo	Paul Patron, friend
Samya Rose Stumo	Helen Fodnæss, friend
Stéphanie Lacroix	Michel Monette, family friend
Ghislaine De Claremont	Melissa Mairesse, daughter
Xavier Fricaudet	Harm van Duin, friend
Marie Christin Philipp	Laura Petrak, Best friend
Eric Prieur	Prieur Michel, my son
Samya Rose Stumo	Evelyn Kreta, family friend
Joanna Toole	Patricia Dailey, cousin by marriage

Melvin Riffel Bennett Riffel	Susan Mears, family friends
Max Thabiso Edkins	Lerato Mophethe, family friend
Clemence Willm-Boutant	Jean-Louis Michel, friend
Stéphanie Lacroix	Charles Balasalle, friend
Joanna Toole	Paul Heydon, friend of family
Paolo Dieci	Elena Dieci, niece
Xavier Fricaudet	Alexandre Graffard, friend
Samya Rose Stumo	Joan Jardine, family friend
Graciela De Luis Ponce	Javier Millet Ponce, aunt
Xavier Fricaudet	Sonia Fayman, friend
Sebastiano Tusa	Carlo Tusa, cousin
Benson Maina Gathu	Ruth Wangui, husband
Laurence	Ludovic Bourbé, friend
Xavier Fricaudet	Jacky Darne, friend
Bertrand	Thiollier, friend
Oliver Vick	Frazer Towns, friend
Xavier Fricaudet	Xabert de Bélizal, family friend
Samya Rose Stumo	Stewart Cory, friend
Xavier Fricaudet	Isabelle Rebillard, family friend

Suzanne Barranger Jean-Michel Barranger	Laetitia Tavernier, I am their daughter
Xavier Fricaudet	Daniel Cholez, family friend
Samya Rose Stumo	Liza Grandia, family friend
Xavier Fricaudet	Emilie Carzon, family friend
Samya Rose Stumo	Theresa Williams, family friend
Graciela De Luis Ponce	Maya Chidiac, friend
Angela Rehborn	Curt McCullough, family friend
Xavier Fricaudet	Dr Berne Philippe, family friend and gp
Danielle Moore	David Moore, brother
Paolo Dieci	Elizabeth McCarthy, sister-in-law
Melvin Riffel Bennett Riffel	Neil Bennett, first cousin
Danielle Moore	Carol Moore, aunt
Camille Geoffroy	Constance Fournier, aunt
Samya Rose Stumo	Hannah Jacques, friend
Stéphanie Lacroix	Joanne Belanger, aunt
Samya Rose Stumo	Deveney Williams, friend
Samya Rose Stumo	Shira Drossos, friend
Paolo Dieci	Luca Dieci, brother
Paolo Dieci	Maria Luisa Mattioli, wife

Paolo Dieci	Nella Dieci, sister
Stéphanie Lacroix	Stéphane Bélanger, uncle
Samya Rose Stumo	Laila Mokhiber, cousin
Xavier Fricaudet	Francoise Berne, family friend
Xavier Fricaudet	Bernadette Henry, family friend
Peter Demarsh Stéphanie Lacroix	Bwalya Lungu, family friends
Max Thabiso Edkins	Khotso Moji, friend
Paolo Dieci	Marta Guglielmi, niece
Clemence Willm-Boutant	Anne Pecheur, friend
Clemence Willm-Boutant	Pascale Vulliez, friend
Samya Rose Stumo	Victoria Fouladi, friend
Xavier Fricaudet	Elisabeth Merigoux, friend
Xavier Fricaudet	Jacques Merigoux, friend
Xavier Fricaudet	Mayol, family friend
Maria Pilar Buzzetti	Andrea Buzzetti, father
Cedrick Galia Asiavugwa	Linet Mwirigi, wife
Sintayehu Shafi Baleker	Ami shewargea, beloved friend
Graciela De Luis Ponce	Susan Draz, friend
Clemence Willm-Boutant	Emma Boutant, stepmother

Xavier Fricaudet	Solange Lamy Née Tandonnet, family friend
Samyo Rose Stumo	Patricia Brooks, friend of maternal grandmother, Laura Nader
Joanna Toole	Vicky Toole, sister
Xavier Fricaudet	Elisabeth Merigoux, friend
Xavier Fricaudet	Coulon Natacha, friend
Xavier Fricaudet	Chardigny Agnès, family friend
Samya Rose Stumo	Ida Paetau, friend
Matthew Vecere	Jeff and Nancy Vecere, nephew
Immaculate Odera	Douglas Ondiere, friend
Clemence Willm-Boutant	Denis Boutant, wife
Clemence Willm-Boutant	Lilas Boutant, mother
Clemence Willm-Boutant	Zélie Boutant, mother
Xavier Fricaudet	Fricaudet François, father
Samya Rose Stumo	Sharon Krogman, cousin
Camille Geoffroy	Thomas Berthet, niece
Samya Rose Stumo	Fr John Kreta, her priest
Anne-Katrin Feigl	Anna Caroline Schmidt, girlfriend of her brother
Samya Rose Stumo	Sarah Gauger, family friend

Marie Christin Philipp	Alexandra, family friend
Melvin Riffel	Della Hoxie, friend
Xavier Fricaudet	Juliette Messié, friend
Melvin Riffel	Chante Hettinger, friend
Stéphanie Lacroix	Gibert, family friend
Angela Rehorn	Catherine Vincent, aunt
Samya Rose Stumo	Staci Marr, cousin
Samya Rose Stumo	Dawn Rosen, family friend
Micah Messent	Katie Johnston, first cousin
Ameen Ismail Noormohamed	Aleema Noormohamed, daughter
Xavier Fricaudet	Didier Cossinet, family friend
Joanna Toole	Adrian Toole, father
Graciela De Luis Ponce	David Martinez Tortosa, family friend
Samya Rose Stumo	George Leka, family friend
Melvin Riffel Bennett Riffel	Neil Bennett, first cousin
Xavier Fricaudet	Nouvion Marie, family friend
Melvin Riffel Bennett Riffel	Chris Rose, cousin
Danielle Moore	Clariss Moore, mother
Danielle Moore	Cynthia Abenir, aunt

Danielle Moore	Rodilla Abenir, grandparent
Danielle Moore	Betty Moore, grandparent
Danielle Moore	Fanny Abenir, niece
Danielle Moore Micah Messent	Mo Phùng, friend and colleague
Danielle Moore	Natasha Perera, friend
Danielle Moore	Lyn Abenir, niece
Danielle Courtney Moore	Mark Uzer, cousin
Danielle Moore	Roshan Perera, family friend
Danielle Courtney Moore	John Uzer, cousin
Danielle Moore	Lexi Deighton, friend
Danielle Moore	Krizza Abenir, cousin
Danielle Moore	Kimberly Cooke, family
Marie Christin Philipp	Ellen Philipp, mother
Marie Christin Philipp	Klaus Philipp, father
Clemence Willm-Boutant	Marine Rudant, friend
Clemence Willm-Boutant	Céline Grimault, friend
Danielle Moore	Drazen Calderon, friend
Danielle Moore	Marciana Alfaro, niece
Camille Geoffroy	Hélène Celier-Ryan, grandmother



Sara Gebremichael	Ababu Ameha, wife
Sintayehu Shafi Baleker	Elias Shegaw, family
Clemence Willm-Boutant	Marine Rudant, friend
Danielle Moore	Bhobbie Alfaro, cousin
Danielle Moore	Gualberto Abenir Jr, niece
Angela Rehorn	Victoria, friend
Danielle Moore	Lyn Abenir, niece
Samya Rose Stumo	Hollis Starks, friend
Michael Ryan	Naoise Ryan, spouse
Angela Rehorn	Annette Vincent, aunt
Paolo Diece	Silvia Guglielmi, uncle
Xavier Fricaudet	Olivier Fricaudet, cousin
Xavier Fricaudet	Elodie Pasquinet, cousin-in-law
Xavier Fricaudet	Frédéric Bret-Limousin, cousin
Micah John Messent	Cristina Garofalo, friend
Clemence Willm-Boutant	Pernille, friend
Paolo Dieci	Maria Dieci, niece
Samya Rose Stumo	Harriett Northcutt, friend of family
Clemence Willm-Boutant	Julie Thoulouzan, friend

Angela Rehorn	Eleanor Vincent, aunt
Sergey Vyalikov	Dmitrii Vialikov, brother
Sergey Vyalikov	Nadezhda Vialikov, mother
Sergey Vyalikov	Alex Vialikov, father
Anne-Katrin Feigl	Lars-Peter Feigl, brother
Michael Ryan	Robert Jackson, friend
Anne-Katrin Feigl	Uri Cohn, family friend
Marie Christin Philipp	Doris Fuchs, aunt
Danielle Moore	Glenda Alfaro, cousin
Ghislaine De Claremont	Yoann Cruzado Mairesse, stepson
Camille Geoffroy	Yves de Miniac Hairault, friend of Catherine Berthet
Clemence Willm-Boutant	Christine Soudry, friend
Matthew Vecere	Dana Morris, friend
Danielle Moore	Maria-Jose Navas, family friend
Micah Messent	Diane Gershman, aunt
Max Thabiso Edkins	Karin von Kleist-Dobos, cousin
Melvin Riffel	Michaela Weeks, friend
Stéphanie Lacroix	Julie Balasalle, coworker and friend
Stéphanie Lacroix	Yolande Winegarden, friend

Danielle Moore	Sarah Hedges, cousin
Karim Saafi	Mohamed Najeh Saafi, brother
Josefin Augusta Ekermann	Romain La Torre, brother-in-law
Angela Rehorn	Shantel Rehorn, sister
Melvin Riffel	Annette Buchholz, friend and coworker
Danielle Moore	Krizza Neille Abenir, cousin
Alexandra Wachtmeister	Anne-Margrete Wachtmeister, I am her mother
Samya Rose Stumo	Deirdre Hatch, family friend
Virginia Chimenti	Sofia Scarpitti, family friend
Samya Rose Stumo	David Hatch, friend
Samya Rose Stumo	Janet Domenitz, family friend
Matthew Vecere	Grace Traa, family friend
Sam Pegram	Brian Eacersall, friend
Angela Rehorn	Bryce Vincent, cousin
Micah Messent	Darryl Gershman, uncle
Samya Rose Stumo	Brian Holmlund, cousin
Anne-Katrin Feigl	Jack Davies, friend
Clemence Willm-Boutant Sam Pegram	Emma O'Leary, friend and colleague
Max Thabiso Edkins	Kathleen McCarthy, friend

Stéphanie Lacroix	Micheline Geoffroy, daughter of a friend
Sebastiano Tusa	Giuseppe Genchi, family friend
Melvin Riffel Bennett Riffel	Jon-Thomas Luken, brothers
Oliver Vick	Anoushka Roberts, friend
Melvin Riffel Bennett Riffel	Susan Mears, family friends
Matthew Vecere	Megan Hoover, friend
Matthew Vecere	Rachel Condon, niece
Angela Rehorn	Joan Vincent, mother
Matthew Vecere	Tomra Vecere, sister
Ekta Adhikari	Binod Thapa, sister-in-law
Josefin Augusta Ekermann	Isabelle Hörlén, family friend
Matthew Vecere	Charles Sinesi, brother-in-law
Samya Rose Stumo	Rich Friedman, friend
Matthew Vecere	Adrianna Mackeown, friend
Ekta Adhikari	Kaji Babu Adhikari, daughter
Samya Rose Stumo	Marjorie Aelion, friend
Angela Rehorn	John Vincent, niece
Samya Rose Stumo	Tom Leatherman, friend
Angela Rehorn	Marie Scharapenko, friend

Stéphanie Lacroix	Suzanne Labelle, aunt
Samya Rose Stumo	Cheryl Engel, family friend
Danielle Moore	Jodie Layne, friend
Samya Rose Stumo	Diane Holmlund, cousin
Angela Rehorn	Phyllis Robertson, friend
Micah John Messent	Amber Tansky, sister
Stéphanie Lacroix	Philippe Leroux, family friend
Samya Rose Stumo	Deborah Conner, I am her cousin's wife
Stéphanie Lacroix	Mike Gonzalez, cousin
Samya Rose Stumo	Philip Palmquist, I am her parent's cousin
Melvin Riffel Bennett Riffel	Ericka Allio, family friend
Danielle Moore	Lita Venezuela, family friend
Angela Rehorn	Mardi Burton, family friend
Samya Rose Stumo	Grantt Lopes, cousin
Danielle Moore	Antonio Collado, uncle
Camille Geoffroy	Philippe Lapeyrere, family friend
Samya Rose Stumo	Lindsey Bandoian, one of my best friend's best friend
Angela Rehorn	Petra MacKay, cousin
Stéphanie Lacroix	Helene Lacroix, granddaughter

Micah John Messent	Laurie Spickard, I am his parent's cousin
Danielle Moore	Lindsay Butt, family friend
Wolfgang Eigner Armin Schietz Christoph Sautner Samya Rose Stumo	Roland Schuster, friend  Barbara Dean, friend
Melvin Riffel	Tasha Kenison, friend
Abiodun Bashua	Mena Teferi, wife
Danielle Moore	Julie Yip, friend
Melvin Riffel Bennett Riffel Matthew Vecere	Jacque D'Amato, family friend  Linda Ha, partner
Stephanie Lamarche	Lucille Martin, family friend
Melvin Riffel Bennett Riffel WFP and UN colleagues	Elena Riffel, aunt  Noel Griffin, friend
Abiodun Oluremi Bashua	Oludamilola Bashua, son
Stéphanie Lacroix	Lizzie Dube, my friend
Danielle Moore	Bryan Sison, family friend
Oliver Vick	Katalin Mester, friend
Marie Christin Philipp	Doris Fuchs, aunt
Marie Christin Philipp	Diana Morgenstern, cousin
Christine Alalo	Peter Elamu, brother

Maria Pilar Buzzetti	Anna Rita Giammetta, mother
Stéphanie Lacroix	Lauren Webber, friend
Max Thabiso Edkins	Laura Schnurre, cousin
Danielle Moore	Trevor Brimson, family friend
Jonathan Seex	Britt-Marie Seex, son
Oliver Vick	Janet Arnold, friend
Joanna Toole	Katy Harris, family friend
Xavier Fricaudet	Ghislaine Tuloup, friend
Anne-Katrin Feigl	Hans-Joachim Feigl, father
Anne-Katrin Feigl	Sieglinde Rink-Feigl, mother
Samya Rose Stumo	Robbyn Swan, family friend
Michael Ryan	Giacomo Re, friend and colleague at WFP
Camille Geoffroy	Dominique Verdugo, family friend
Marie Christin Philipp	Julia Borkenhagen, friend
Joanna Toole	Edward Shutt, family friend
Suzanne Barranger Jean-Michel Barranger	Faustine Barranger Le Terrien, daughter-in-law
Sam Pegram	Karen Smith, family friend
Alexandra Wachtmeister	Wilhelm Wachtmeister, father
Prof Agnes Wangari Gathumbi	Jane Lucy Wambui Gachihi, cousin

Max Thabiso Edkins	Don Edkins, father
Marie Christin Philipp	Susanne Radtke, friend
Jackson Musoni	Huguette Debets, mother of his children
Joanna Toole	Linda Burton, friend
Clemence Willm-Boutant	Matthieu Willm, brother
Clemence Willm-Boutant	Sibylle Willm, niece
Oliver Vick	Pete Kenyon, friend
Immaculate Achieng Odero	George Were, family friend
Samya Rose Stumo	Rich Friedman, friend
Matthew Vecere	Mary Steen, friend
Camille Geoffroy	Serres Valérie, friend
Max Thabiso Edkins	Leonita Louw, friend
Matthew Vecere	Colleen Menz, aunt
Clemence Willm-Boutant	Valérie Willm, sister-in-law
Micah John Messent	Rosemary Johnston, aunt
Camille Geoffroy	Guillaume Geoffroy, cousin
Maria Pilar Buzzetti	Sylwia Polkowska, sister of my friend
Ghislaine De Claremont	Alain de Claremont, brother
Ghislaine De Claremont	Marie Therese Verhoeven, sister-in-law



Max Thabiso Edkins	Christine Gysae, aunt
Samuel Pegram	Valerie Pegram, grandmother
Stéphanie Lacroix	Line Robillard, niece
Stéphanie Lacroix	Mich Robillard, niece
Matthew Vecere	John DiGenni, best friend
Michael Ryan	Declan O'Mahony, family friend
Samya Rose Stumo	Preston Cory, friend
Danielle Moore	Kate Randall, cousin
Sam Pegram	Deborah Pegram, mother
Marie Christin Philipp	Helmut Schmidt, family friend
Danielle Moore	Samantha Gunness, cousin
Marie Christin Philipp	Monika Schmidt, family friend
Jessica Hyba	Sara Meek, family friend
Xavier Fricaudet	Bernadette C222, family friend
Danielle Moore	Alex Cake, cousin
Samya Rose Stumo	Amy Alpert, family friend
Danielle Moore	Robert Cake, cousin
Melvin Riffel Bennett Riffel	Marilyn Koutnik, family friend
Stéphanie Lacroix	Lorraine Theberge, family friend

Marie Christin Philipp	Wiebke Hörmeyer, family friend
Angela Rehorn	Tara Reid, friend
Graciella de Luis Ponce	Regina Ponce Laviada, first cousin
Angela Rehorn	Roland Rehorn, I am Angela's father
Danielle Moore	Siobhan Takala, friend
Samya Rose Stumo	Nadia Milleron, mother
Danielle Moore	Joyce Hewitt, friend
Samya Rose Stumo	Adnaan Stumo, brother
Samya Rose Stumo	Torleif Stumo, brother
Melvin Riffel Bennett Riffel	Carl Koutnik, family friend
Oliver Vick Jessica Hyba	Rebecca Vick, brother and 'sister-in-law'
Samya Rose Stumo	Kristen Brookes, family friend
Oliver Vick	Simon Tilbury, friend
Clemence Willm-Boutant	Solange Willm, niece
Jessica Hyba	Peggy Baxter, friend
Clemence Willm-Boutant	Jean Willm, nephew
Oliver Vick	Susie Townson, family friend
Ghislaine De Claremont	Axel De Claremont, godchild
Ghislaine De Claremont	Kim Decramer, family friend

Oliver Vick	Alan Gray, friend
Samya Rose Stumo	Theresa Williams, family friend
Stéphanie Lacroix	Charles Balasalle, friend
Samya Rose Stumo	George Leka, family friend
Samya Rose Stumo	Nathaly Figueroa, family friend
Bennett Riffel Melvin Riffel	Kim Murphy, family friend
Stéphanie Lacroix	Liane Veleke, family friend
Xavier Fricaudet	Berne, friend and bis général praticien
Oliver Vick	James Froehlich, family friend
Camille Geoffroy	Philippe Cavaroz, friend
Matthew Vecere	Jamie Heritage, friend
Ghislaine De Claremont	Cécile De Claremont, aunt
Max Thabiso Edkins	Maria Marques Aparici, brother-in-law
Stéphanie Lacroix	Lindsay Moscarello, cousin
Clemence Willm-Boutant	Isabelle Urseau, friend
Stéphanie Lacroix	Lindsay Moscarello, cousin
Sergei Vialikov	Alex Fikhman, uncle-in-law
Oliver Vick	Denese Gray, family friend
Clemence Willm-Boutant Sam Pegram	Maria Keucheyan, friend

Immaculate Achieng Odero	Eliakim Odero, sister
Samya Rose Stumo	Sandra Sermini-Curtiss, family friend
Samya Rose Stumo	Valerie Spriggs, friend, neighbor, teacher
Marie Christin Philipp	Julia Simonsberger, friend
Samya Rose Stumo	Oliver Goodwin, dear friend
Samya Rose Stumo	Bobbie D'Alessandro, friend
Samya Rose Stumo	Arlene Tolopko, family friend
Ghislaine De Claremont	Kristof Lacante, my wife's aunt
Ghislaine De Claremont	Axel, nephew
Sergey Vyalikov	Alex Fikhman, uncle-in-law
Michael (Mick) Ryan	Fergus Gleeson, friend
Danielle Moore	I Deighton, friend
Oliver Vick	Lucy Wildblood, friend
Stéphanie Lacroix	Charles Balasalle, friend
Peter deMarsh	Barbara deMarsh, sister
Samya Rose Stumo	Barbara Rose Johnston, friend
Matthew Vecere	Charles Rigano, close friend, former roommate and former co-worker
Samya Rose Stumo	Rami Alhrass, family friend
Oliver Vick	David Haines, uncle

Samya Rose Stumo	Melisse Bouziane, cousin
Oliver Vick	Paul McGrath, friend
Samya Rose Stumo	Angela Kreta, family friend
Jessica Hyba	Jennifer, friend
Oliver Vick	Tasha Slaise, friend / godchild
Bennett Riffel Melvin Riffel	Diana Officer, friend
Julian Mwash	Florah Mwash, sister
Virginia Chimenti	Angela Maria Farioli, friend
Oliver Vick	Keri Powell, family friend
Sam Pegram	Melanie Cremona, friend
Marie Christin Philipp	Mechthild Schröter, family friend
Marie Christin Philipp	Horst Schröter, family friend
Michael Ryan	Eoin Daffy, friend
Jessica Hyba	Ed Darlington, friend
Xavier Fricaudet	Le Moal, family friend
Graciela De Luis Ponce	Jihane Sfeir, friend
Anne-Katrin Feigl	Regina Buono, friend
Samya Rose Stumo	Bianca Fiore, friend
Joanna Toole	James Peters, uncle

Oliver Vick	Charles Bennett, friend
Josefin Augusta Ekermann	Julio La Torre, I am Josefin's father
Micah John Messent	Jacqueline Messent, cousin
Samya Rose Stumo	Angie Leka, friend
Camille Geoffroy	Brian Mathé, friend
Samya Rose Stumo	Dan Ruderman, friend
Camille Geoffroy	Liliane Loll, friend
Xavier Fricaudet	Sonia Schirck, friend
Xavier Fricaudet	Arnaud Fricaudet, cousin
Micah John Messent	John Joseph Messent, father
Xavier Fricaudet	Elena Rieutord, family friend
Xavier Fricaudet	Lamotte Geneviève, family friend
Camille Geoffroy	Nicolas Merle, friend
Camille Geoffroy	Juliette Pot, friend
Samya Rose Stumo	Caitlin Hotaling, dear friend
Xavier Fricaudet	Chantal Demonchaux, family friend
Micah John Messent	Joy Camp, aunt
Micah John Messent	David Camp, uncle
Xavier Fricaudet	Jacques Henry, friend

Xavier Fricaudet	Foillard Fabienne, friend
Samya Rose Stumo	Brian Hubbard, family friend
Xavier Fricaudet	Bernadette Henry, family friend
Clemence Willm-Boutant	Pantaléon Cédric, friend
Xavier Fricaudet	Jacques Rebillard, family friend
Xavier Fricaudet	Fabienne Rebillard Geoffroy, family friend
Camille Geoffroy	Luigi Flora, I am her stepfather
Camille Geoffroy	Diane de Schoutheete, niece
Angela Rehorn	Ryan Rehorn, brother
Camille Geoffroy	Yann Moysan, uncle
Max Edkins	Teboho Edkins, brother
Xavier Fricaudet	Sophie Ducerf, family friend
Maygenet Worku	Eyasu Teshome, husband
Marie Christin Philipp	Julia Schmidt, family friend
Samya Rose Stumo	Sarah Gauger, family friend
Melvin Riffel Bennett Riffel	Phyllis West, friend
Samya Rose Stumo	Joseph Kreta, childhood friends
Clemence Willm-Boutant	Leone Jonchere, friend
Graciela De Luis Ponce	Enrique Falco, brother-in-law

Xavier Fricaudet	Pommier, family friend
Xavier Fricaudet	Agnès Debiesse, friend
Camille Geoffroy	Pierre de Courcel, uncle
Camille Geoffroy	Chantal Guillermain, family friend
Clemence Willm-Boutant	Lucie Viver, friend
Marie Christin Philipp	Tim Nab, family friend
Camille Geoffroy	Sophie Perret, family
Camille Geoffroy	Bernard Rouget, family
Camille Geoffroy	Caumes, niece
Clemence Willm-Boutant	Sylvain Werlé, friend
Xavier Fricaudet	Charles-Henri Duclos, friend
Xavier Fricaudet	Maud Duclos, friend
Samya Rose Stumo	Julianna Kreta, friend
Samya Rose Stumo	Sharrie Brooks, cousin
Danielle Moore	Kim Sasaki, friend
Danielle Moore	Adrean Ojoleck, friend
Camille Geoffroy	Constance Fournier, aunt
Samya Rose Stumo	Kimberly Gazzaniga, family friend
Jackson Musoni	Ali Kabanda Ndahiro, biological brother



Samya Rose Stumo	Penny Owen, family friend
Angela Rehorn	Jessica Hill, friend
Samya Rose Stumo	Carolyn Souaid, cousin
Angela Rehorn	Paula Lagman, best friend
Micah Messent	Donald Wilson, uncle
Samya Rose Stumo	Laurie Engel, family friend
Sam Pegram	Brian Eacersall, friend
Matthew Vecere	Emma Noh, friend
Abiodun Bashua	Titilayo Aloba, uncle
Mick Ryan	Orla Clinton, friend
Samya Rose Stumo	Carol Conner, family friend
Melvin Riffel Bennett Riffel Danielle Moore	Molly Abraham, aunt Sarah Ruan, family friend
Bennett Riffel Melvin Riffel Stéphanie Lacroix	Carly Bollinger, cousin Sara Goulet, friend
Melvin Riffel Bennett Riffel Samya Rose Stumo	Susan Mears, family friends Lilia Flores, family friend
Samya Rose Stumo	Nina LaPorta, family friend
Micah Messent	Wes Ballard, brother-in-law

Angela Rehorn	Matthew Argue, friend's sister
Samya Rose Stumo	Alexander Tripp, godfather
Danielle Moore	Ice de Guzman, family friend
Stéphanie Lacroix	Kiemia Rezagian, friend
Samya Rose Stumo	Matthew Souaid, cousin
Samya Rose Stumo	Robert Baroody, family friend
Samya Rose Stumo	Suzanne Murray, family friend
Melvin Riffel	Tina Felch, mother-in-law
Samya Rose Stumo	Phyllis Webb, close family friend
Melvin Riffel	Steven Felch, father-in-law
Matthew Vecere	Nicole Ireland, family friend
Max Thabiso Edkins	Lerato Mophethe, very close family friend
Josefin Augusta Ekermann	Julio La Torre, I am Josefin's father
Samya Rose Stumo	Erika Shaker, cousin
Samya Rose Stumo	Lindsey Bandoian, friend of a friend of Samya
Samya Rose Stumo	Lori Tobasco, family friend
Samya Rose Stumo	Betsy Hoke, family friend
Angela Rehorn	Jenna Freeman, friend
Samya Rose Stumo	Cynthia Clancy, family friend

Josefin Augusta Ekermann	Julio La Torre, father
Samya Rose Stumo	Endre Farkas, cousin's husband
Samya Rose Stumo	Chase Peters, family supporter
Samya Rose Stumo	Mr. and Mrs. Paul Nimchek, friends
Harina Hafitz	Andi Hafitz, brother
Christoph Sautner	Stephan Schoiswohl, friend
Angela Rehorn	Bryce Vincent, uncle
Wolfgang Eigner	Jennifer Stefanits, friend
Karim Saafi	Azdine Bousnana, friend
Matthew Vecere	Christina Newdeck, friend
Max Thabiso Edkins	Mugisha, friend
Melvin Riffel Bennett Riffel	Carol ShROUT, close family friend
Carlo Spini Gabriella Viciani	Andrea Spini, I am their son
Danielle Moore	Carolyn Moore, aunt
Micah Messent	James Greenup, friend
Maria Pilar Buzzetti	Giuliana Clementi, family friend
Oliver Vick	Nicola Baldwin, friend
Joanna Toole	Alyx Elliott, friend
Josefin Augusta Ekermann	Matilda Ekermann, cousin

Xavier Fricaudet	Yves Ducerf, I am his parent's friend
Ben Ahmed Chihab	Isabelle Massart, I am the ex-wife and mother of his son
Eléonore	Guy Tellier, friend
Joanna Toole	Paul Spruce, cousin
Marie Christin Philipp	Julia Borkehagen, friend
Ben Ahmed Chihab	Adam Massart-Chihab, I am his son
Maria Pilar Buzzetti	Diana Dee Rabba, best friend
Immaculate Achieng Odero	Susan Owiro, friend
Mick Ryan	Clodagh Cone, friend
Oliver Vick	Luqman Slaise, friend
Max Thabiso Edkins	Fionna Kossmann, friend
Camille Geoffroy	Malika Imbs, friend
Sebastiano Tusa	Alice Tosi, family friend
Oliver Vick	Henny Swn, friend
Jessica Hyba Samya Rose Stumo	Ludwika Dec, family friend
Clemence Willm-Boutant	Mège Alexandra, friend
Immaculate Achieng Odero	Matthieson Obonyo, friend
Oliver Vick	Ilaria Gandossi, I am the mother of his children
Josefin Augusta Ekermann	Alejandro Conde Geli, ex-boyfriend

Max Thabiso Edkins	Andrea Andersen, cousin
Joanna Toole	Paul Spruce, cousin
Jonathan Seex	Anne-Marie Petersen, aunt
Oliver Charles Vick	Natalie Bennett, friend
Melvin Riffel	Korryll Lave, friend
Jessica Hyba Oliver Vick	George Ghikas, friends
Camille Geoffroy	Grilhout Des Fontaines Benedicte, family friend
Clemence Willm-Boutant	Willm Regis, cousin
Christoph Sautner	Johannes Pernkopf, friend
Clemence Willm-Boutant	Mathieu Chaumeil, friend
Oliver Vick	Nick Coakley, friend
Sam Pegram	Pierson Racanelli, friend
Harina Hafitz	Boyer Dorian, family friend
Jessica Hyba	Gregory Kovacs, brother
Jessica Hyba	Allan Kovacs, stepfather
Jessica Hyba	Karol Kovacs, mother
Joanna Toole	Victoria Ryan, cousin
Samuel Pegram	Valerie Pegram, grandmother
Matthew Vecere	Susan Adiletto, friend

Clemence Willm-Boutant	Thomas Loreaux, friend
Samya Rose Stumo	Michelle Moore, friend
Samya Rose Stumo	Clarice Faber, friend
Danielle Moore	William Hedges, family friend "grandfather"
George Kabau	Esther Kabau, brother
Immaculate Achieng Odero	Kennedy Ogola, relative
Karim Saafi	Mohamed Najeh Saafi, brother
Samya Rose Stumo	Robin Holmlund, cousin
Samya Rose Stumo	Sallyann Szczesiul, family friend
Xavier Fricaudet	Christiane, friend
Samya Rose Stumo	Morgan Hoke, family friend
Samya Rose Stumo	Sara Simpson, family friend
Xavier Fricaudet	Szyjka, friend
Angela Rehorn	G. Smith, I am her parent's friend
Dawn Tanner	Cody French, son
Abdulqadir Mohamed Qasim	Qamar Moalin, partner
Samya Rose Stumo	Judith, family friend
Samya Rose Stumo	Judith Metro, family friend
Samya Rose Stumo	Merrell, friend

Danielle Moore	Stacey Troster, family friend
Angela Rehorn	Jeremy Harbinson, friend
Samya Rose Stumo	Dale Webb, family friend
Stéphanie Lacroix	Mike Gonzalez, cousin
Samya Rose Stumo	Merrell, friend
Danielle Moore	Stacey Troster, family friend
Angela Rehorn	Jeremy Harbinson, friend
Samya Stumo	Dale Webb, family friend
Stéphanie Lacroix	Mike Gonzalez, cousin
Daniele Moore	Kathy E. Martorino, friend of the family
Samya Rose Stumo	Clara Tripp, family friend
Paolo Dieci	Harlan Downs-Tepper, family friend
Samya Rose Stumo	Ariana Cardillo, friend
Melvin Riffel Bennet Riffel Mulugeta Shenku	William Bollinger, uncle Zekarias Shenkut, brother
Michael Ryan	Stephen Cahill, friend
Paolo Dieci	Elena Dieci, niece
Samya Rose Stumo	Laudison Lopes, cousin
Camille Berthet	Pascale Perez, family friend